**Lab Overview**

The general steps of the lab are as follows:

1. Build a sample data collection form using ODK Build and XLS Form
2. Build a full data collection form that replicates the data collection form you made with Esri's tools in the last lab
3. Set up a server using ODK Aggregate to host your form and the data your users will collect
4. Test your form and server by collecting sample data points with ODK Collect mobile app
5. Export your collected data from ODK
6. Reflect on differences in developer experience and user experience between Esri's tools and ODK's tools for mobile data collection

**Part 1 Step 3**

1. What is the default threshold for accuracy at which XLSForm will collect GPS data? Describe the process for changing the accuracy threshold on GPS data when editing with Excel. What sheet do you do this in, what columns are required, etc.?

By default, GPS is collected when accuracy level is within 5 meters. To change this setting, you add a row as shown below to the *survey* sheet in your spreadsheet.

| **type** | **name** | **label** | **body::accuracyThreshold** |
| --- | --- | --- | --- |
| geopoint | store\_gps | Collect the GPS coordinates of this store. | 1.5 |

1. What are three options that XLSForm makes available for collecting metadata? Would any of these be useful to collect for the data collection scenario you developed for your apps?

Unless I’m reading the documentation incorrectly, which is quite possible, there are more than three options. However, only some fields apply to mobile based forms. The audit type metadata seems very useful for the forms we’ve been working on in class, as it allows the collection of locations during the form filling process. This is done through location-priority, location-min-interval and location-max-age parameters.

1. Let’s say you’ve designed a form to use when surveying households that would like to foster rescue cats. Your organization allows each household to foster up to three cats at once, but no more. One of your questions asks how many cats the potential hosts would like to foster, and you need to set the possible responses to be no more than 3. How would you set up this constraint in the Survey form sheet in Excel? Fill in the chart below to establish this constraint:

| **type** | **name** | **label** | **constraint** |
| --- | --- | --- | --- |
| **Integer** | **Quantity** | **How many cats would you like to foster?** | **(. > '1') and (. < '3')** |

**Part 2**

1. Did you make any changes in your form between Lab 3 and Lab 4? If so, why? Were they changes that were necessary because of the technological differences between the ArcGIS tools and the ODK tools, or were they changes you decided to make for some other reason? If there are any differences between your forms in these two labs, I expect to see them explained and justified here.

Pros:

Yes I made changes! I did so due to the constraints in ODK allowing me to create conditional dependent fields that the previous lab was incapable of containing.

Cons:

When checking the XLSform against Enketo, it doesn’t show the Follow-up questions based on the [relevant syntax](http://xlsform.org/en/#relevant). Enketo does not properly recognize the default syntax created by ODK Build.

* For binary use cases, it would be select\_one: ${name} = ‘yes/no’
* For multiple choice use cases, it would be select\_multiple: selected(${name},’option’)

When creating the form, checkboxes are buggy for “Required” and “Follow-up Questions”.

Differences:

I did notice the geopoint field with ODK allows you to add a map when gathering GPS. I did not see that as an option in Survey123. Other differences were basic, such as field names. I’m still uncertain what a good practice is for naming fields. It really seems like the best way to name a field is to go with something that is easy to understand, so that if I need to go back to it I will remember what field is being reference and it’s not too complicated when creating relevant syntax.

### Part 5: Critical Reflection

In your write-up, please answer the following questions:

1. From a developer’s stand point – which tool would you rank higher in terms of usability, Collector for ArcGIS or the ODK system? Justify your answer and use terminology from class and readings where appropriate.

I would prefer to use ODK for it’s ease of use, but there are problems with in app signifiers for both products, so it is very hard to choose. Overall, I believe ODK provides a better service especially with the output data visualization creating a map with the click of a button.

1. From a data collector as end user’s stand point – which tool would you rank higher in terms of usability, Collector for ArcGIS or ODK? Justify your answer and use terminology from class and readings where appropriate.
2. From a data analyst point of view, which tool would you rank higher in terms of the data output usability, Collector for ArcGIS or ODK? Justify your answer and use terminology from class and readings where appropriate.
3. As we learned in class, ODK’s tools are built to be modular, meaning you can use Build without using Aggregate or vice versa depending on your needs, and you can combine aspects of ODK’s tools with tools from other services. Is there a way in which you might deploy Esri tools in combination with ODK’s tools, using the best aspects of each as they apply to your scenario? Think about all aspects of the process, from data collection to data storage to data analysis and describe how and why you might go about this. If you prefer one complete set of tools over the other and would choose to use only ODK or Esri, justify that choice.

### Deliverables

Submit your work as attached files on Canvas. You should submit 1 .xml file, 1 screenshot, 1 JSON file, and 1 .docx or .pdf file with answers to all of the questions.

* XML of your Art Survey form (Part 1, step 2)
* Answers to the following questions about XLSForm and your data collection form (Part 1 step 3 and part 2):
  1. What is the default threshold for accuracy at which XLSForm will collect GPS data? Describe the process for changing the accuracy threshold on GPS data when editing with Excel. What sheet do you do this in, what columns are required, etc.?
  2. What are three options that XLSForm makes available for collecting metadata? Would any of these be useful to collect for the data collection scenario you developed for your apps?
  3. Let’s say you’ve designed a form to use when surveying households that would like to foster rescue cats. Your organization allows each household to foster up to three cats at once, but no more. One of your questions asks how many cats the potential hosts would like to foster, and you need to set the possible responses to be no more than 3. How would you set up this constraint in the Survey form sheet in Excel? Fill in the chart below to establish this constraint:

| **type** | **name** | **label** | **constraint** |
| --- | --- | --- | --- |
|  |  |  |  |

* 1. Did you make any changes in your form between Lab 3 and Lab 4? If so, why? Were they changes that were necessary because of the technological differences between the ArcGIS tools and the ODK tools, or were they changes you decided to make for some other reason? If there are any differences between your forms in these two labs, I expect to see them explained and justified here.
* Screenshot of your form uploaded to Aggregate (Part 3, step 2)
* JSON file of your exported form submissions (Part 4, step 2)
* Answers to the following questions (Part 5):
  1. From a developer’s stand point – which tool would you rank higher in terms of usability, Collector for ArcGIS or the ODK system? Justify your answer and use terminology from class and readings where appropriate.
  2. From a data collector as end user’s stand point – which tool would you rank higher in terms of usability, Collector for ArcGIS or ODK? Justify your answer and use terminology from class and readings where appropriate
  3. From a data analyst point of view, which tool would you rank higher in terms of the data output usability, Collector for ArcGIS or ODK? Justify your answer and use terminology from class and readings where appropriate.
  4. As we learned in class, ODK’s tools are built to be modular, meaning you can use Build without using Aggregate or vice versa depending on your needs, and you can combine aspects of ODK’s tools with tools from other services. Is there a way in which you might deploy Esri tools in combination with ODK’s tools, using the best aspects of each as they apply to your scenario? Think about all aspects of the process, from data collection to data storage to data analysis and describe how and why you might go about this. If you prefer one complete set of tools over the other and would choose to use only ODK or Esri, justify that choice.